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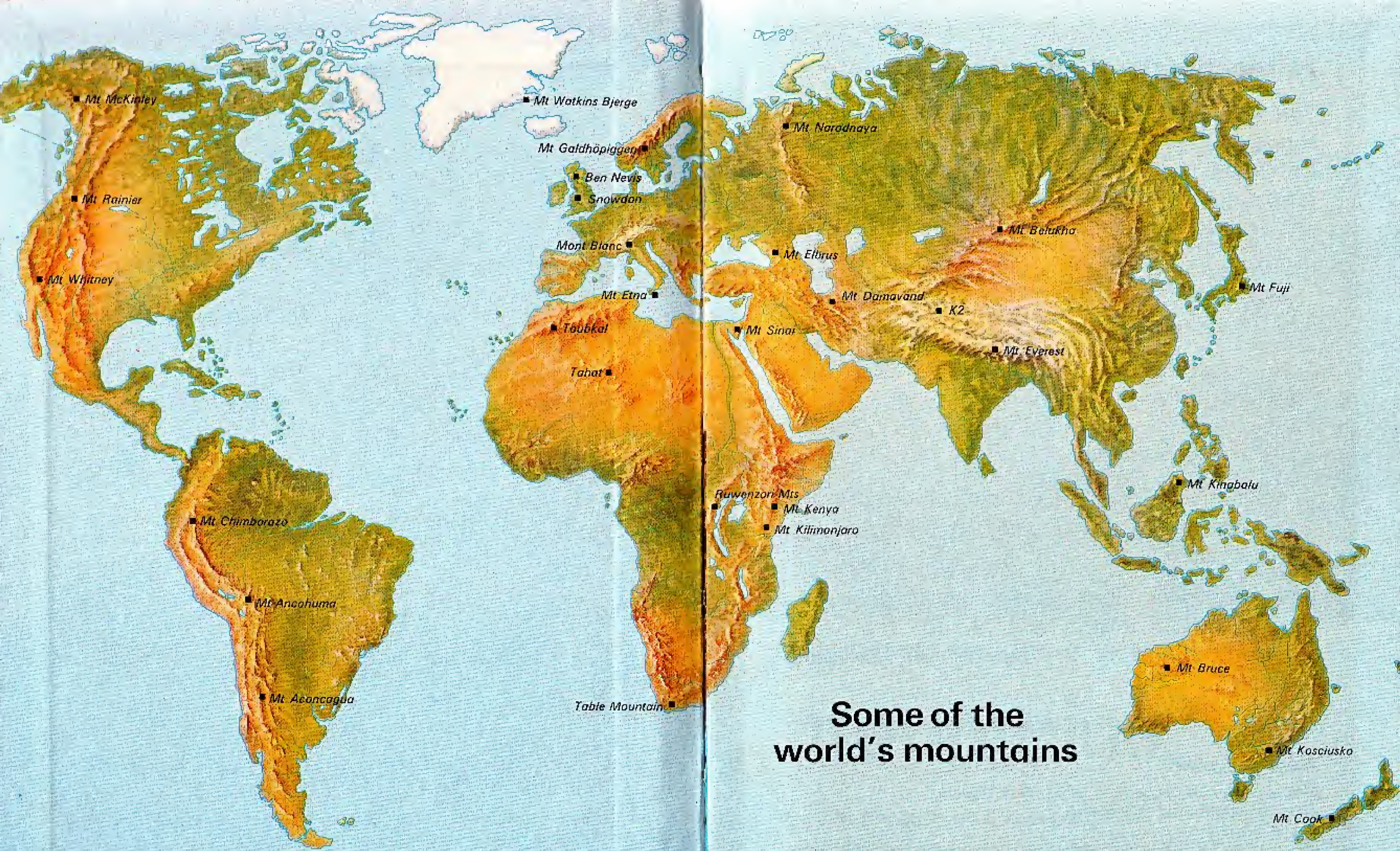
mountains

LADYBIRD LEADERS

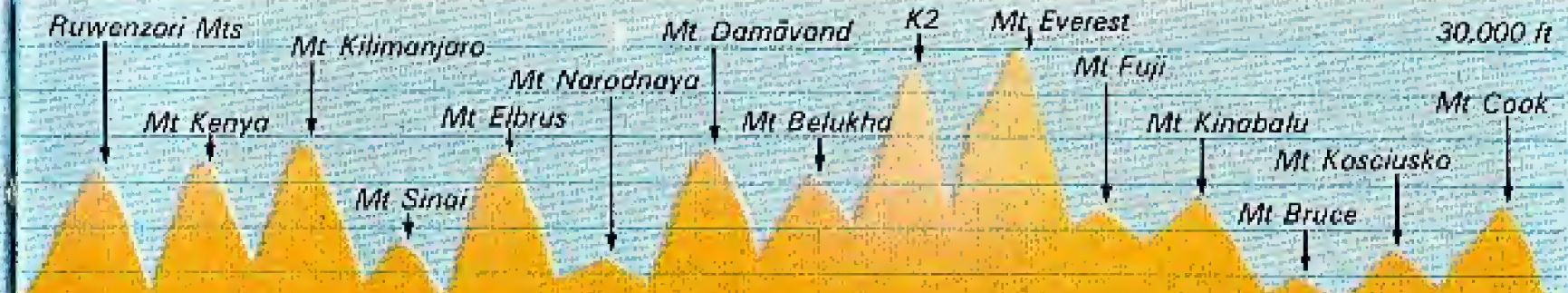
# mountains







Sea level Horizontal lines represent intervals of 1524 m (5,000 ft)



Sea level



## to teachers and parents

This is a LADYBIRD LEADER book, one of a series specially produced to meet the very real need for carefully planned *first information books* that instantly attract enquiring minds and stimulate reluctant readers.

The subject matter and vocabulary have been selected with expert assistance, and the brief and simple text is printed in large, clear type.

Children's questions are anticipated and facts presented in a logical sequence. Where possible, the books show what happened in the past and what is relevant today.

Special artwork has been commissioned to set a standard rarely seen in books for this reading age and at this price.

Full colour illustrations are on all 48 pages to give maximum impact and provide the extra enrichment that is the aim of all Ladybird Leaders.

### *Acknowledgments*

The photograph opposite is by Mr G H Towers;  
cover illustration by Roy Smith.

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A Ladybird Leader

# mountains

by P H Armstrong BSc MA PhD

with illustrations by Gerald Witcomb MSIAD

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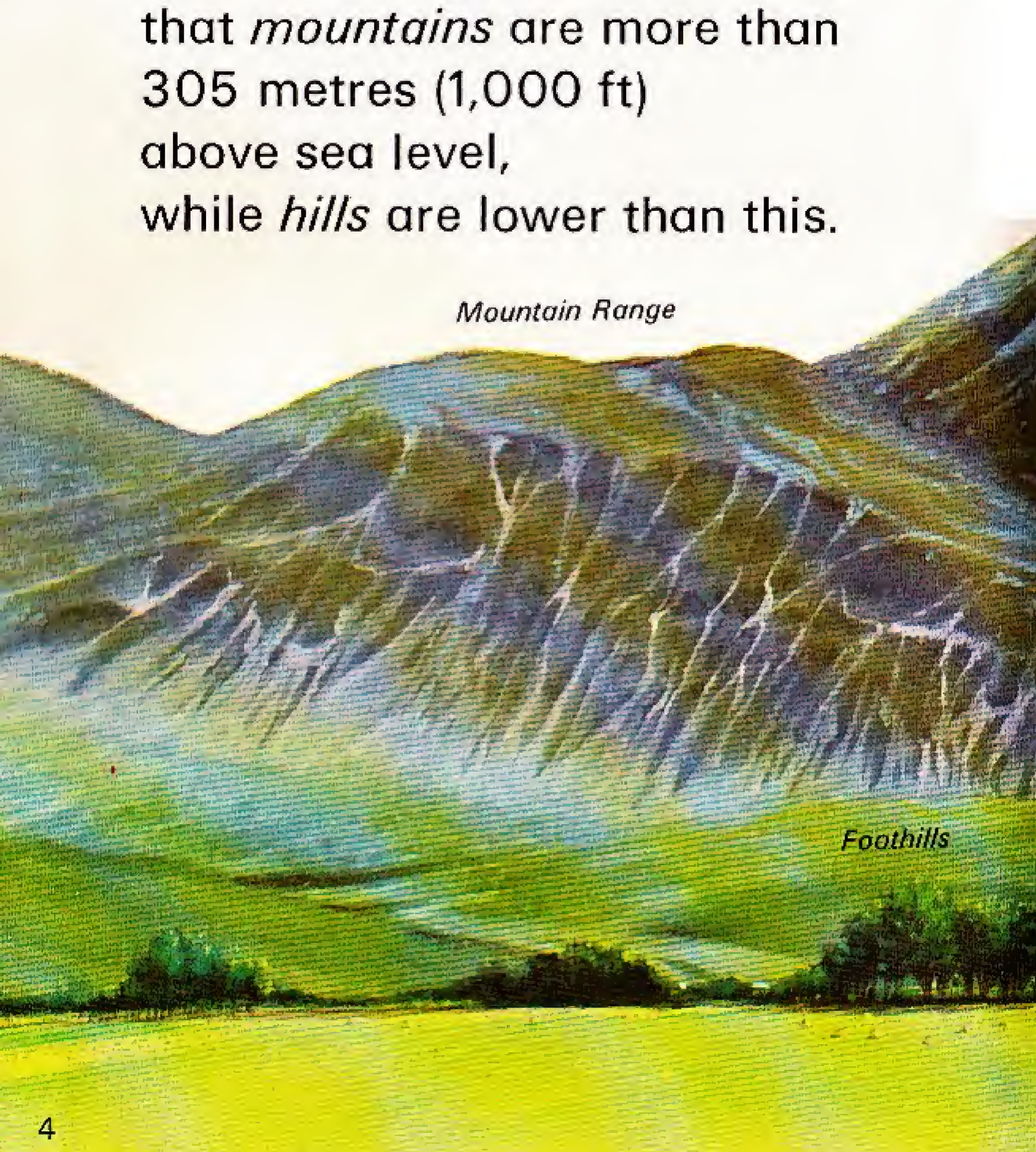
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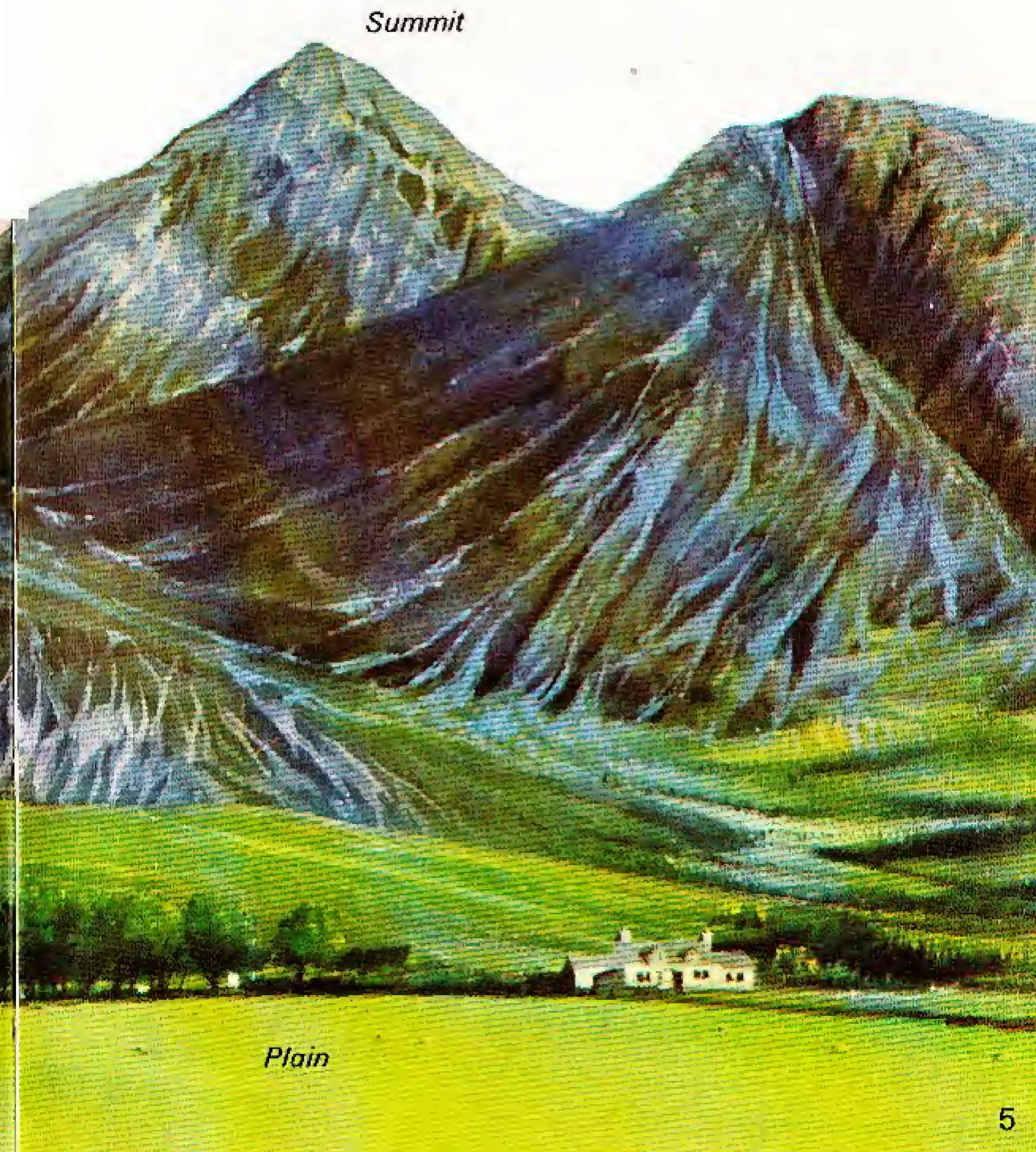
## What is a mountain ?

A mountain is steep land that stands out clearly above the land around it.

Sometimes it is said that *mountains* are more than 305 metres (1,000 ft) above sea level, while *hills* are lower than this.



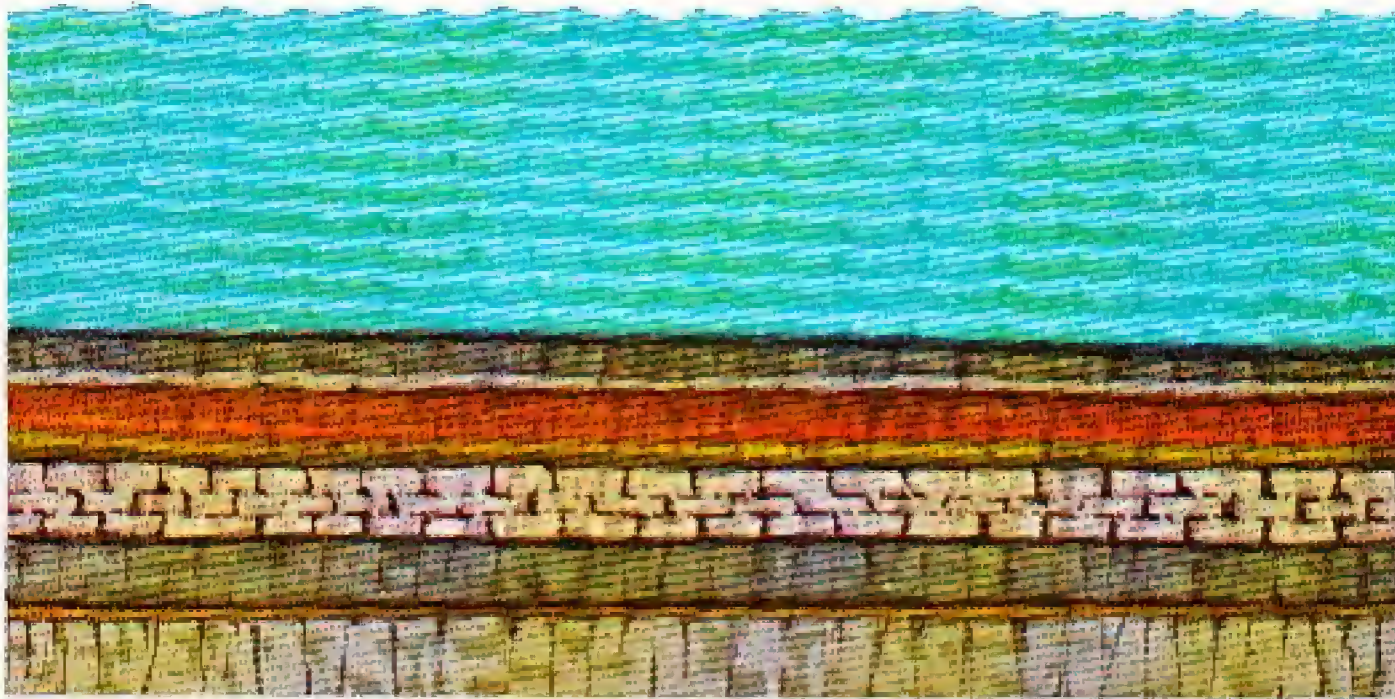
A group of several mountains is called a *mountain range*.  
The highest point of a mountain is called the *summit*.



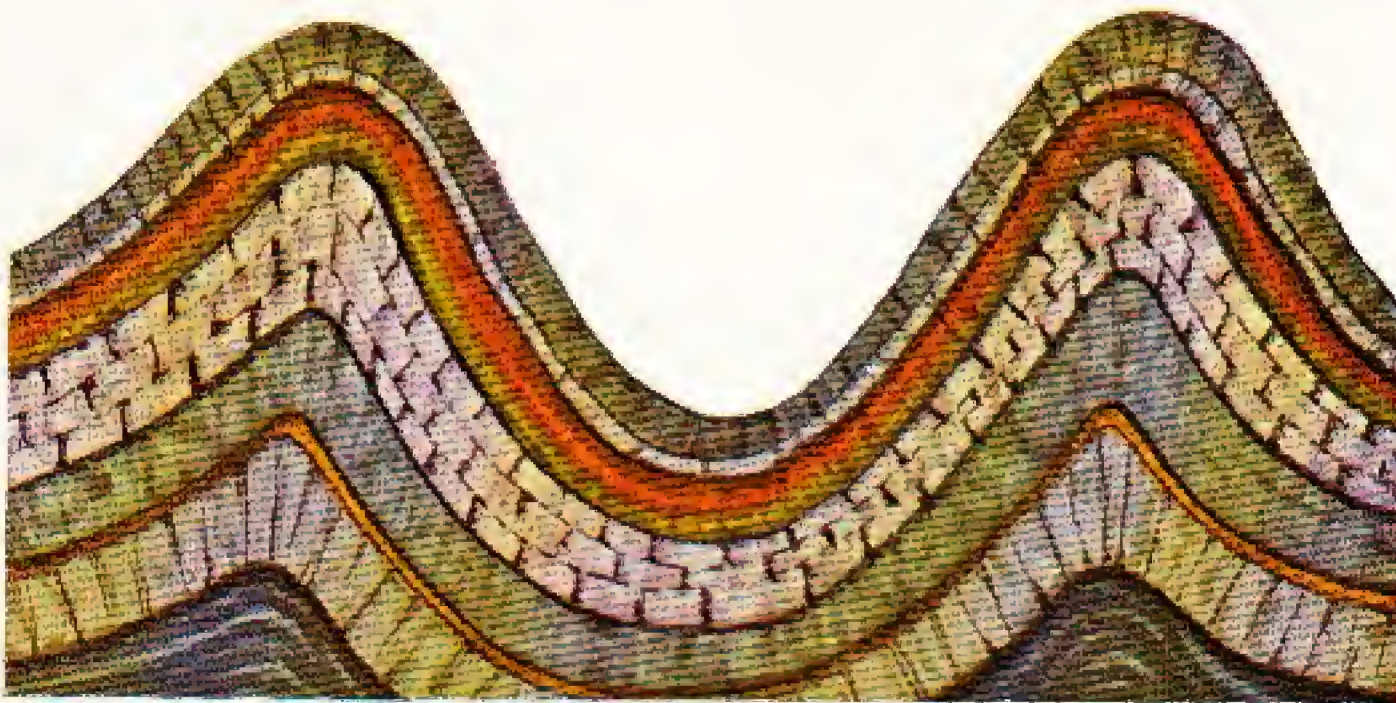


## How mountains form

Some mountains were formed by the folding of rocks that were once beneath the sea.



When the rocks were pushed up, new land formed.



Rain, frost and rivers gradually wear the land away over thousands of years. Sometimes deep *valleys* cut by rivers run through mountain ranges.







## Mountain weather

It is very cold far above sea level,  
so on very high mountains  
summers are short.

Often it is very windy  
close to the summits.



Mountain ranges sometimes have  
more rain than lower ground nearby.  
When a high mountain  
reaches into the clouds,  
someone standing on the summit  
would be surrounded by mist.



## Plant-life on mountains

Because it gets wetter and colder as one goes higher, different plants grow at different heights on a high mountain.

In the Rocky Mountains of the south west USA cacti grow in the deserts of the foothills.

Higher up are pine and spruce forests. Above them grow only a few rock plants, mosses and grasses.

There are patches of snow on the highest mountains all through the year.



Plant-life on mountains in south west U S A





## Alpine plants

Rock plants or *alpine plants* are small (they are named after the Alps, the range of high mountains in southern Europe) and often grow in cracks in the rocks.

Some are like pin-cushions so that they are not blown to pieces by the strong winds.

They can survive the cold winters of high mountains.

Many rock plants have very beautiful flowers.





## Mountain animals

Animals that live in mountainous areas are very sure-footed and can climb over rocky ground.



*Chamois*

*Ibex*



*Bighorn Sheep*

Ibex and chamois (say sham-wa) are among those that live in the Alps, and bighorn sheep graze in the Rocky Mountains.





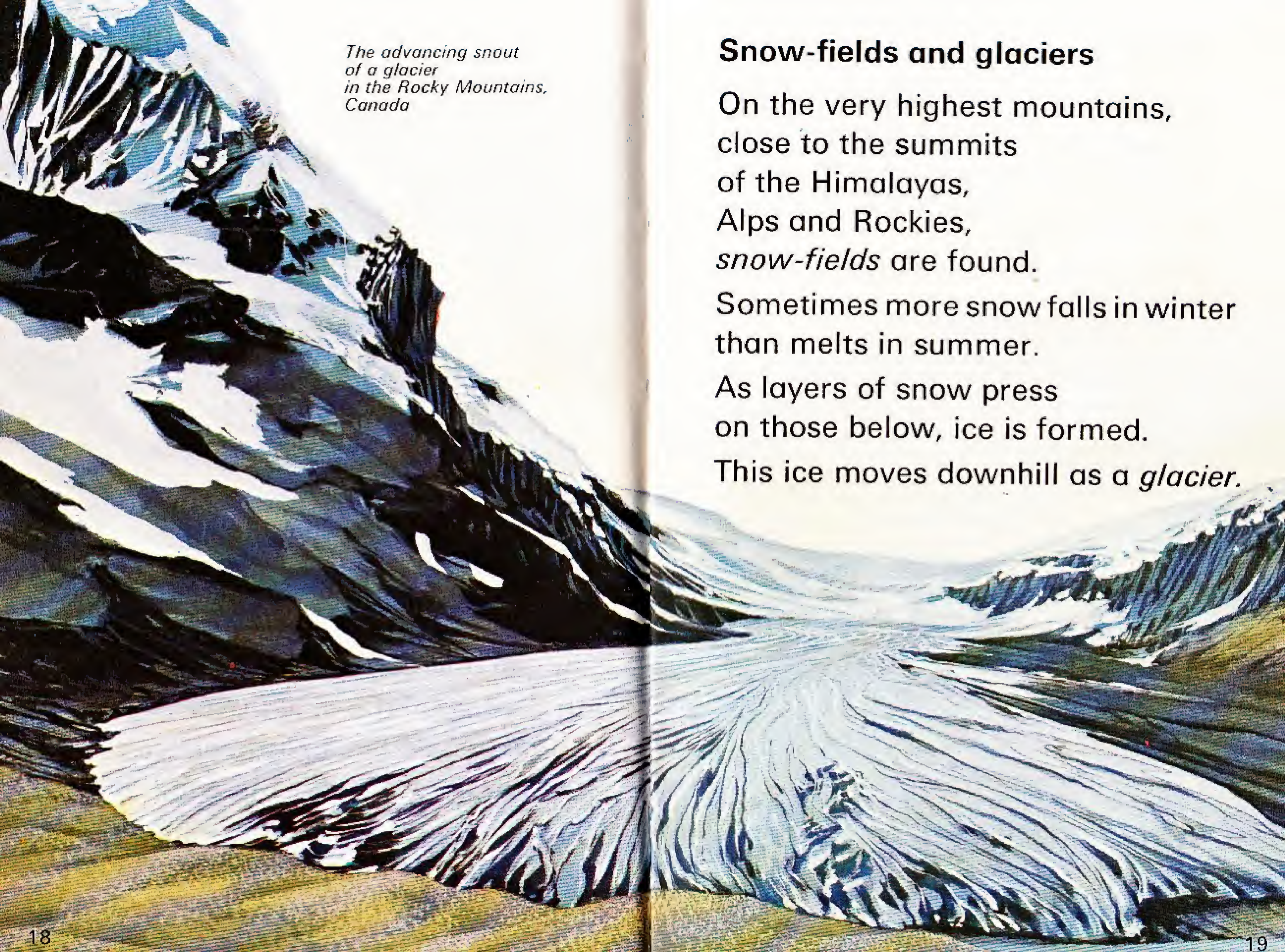
## **Alpine meadows**

On the mountainsides of the Alps and some other mountain ranges alpine pasture is found.

These grassy areas are full of flowers in summer.

Sheep and goats often graze there. In Switzerland and Norway some people live in little houses high in the mountains in summer. In winter they take their animals down to a village.





*The advancing snout  
of a glacier  
in the Rocky Mountains,  
Canada*

## **Snow-fields and glaciers**

On the very highest mountains,  
close to the summits  
of the Himalayas,  
Alps and Rockies,  
*snow-fields* are found.

Sometimes more snow falls in winter  
than melts in summer.

As layers of snow press  
on those below, ice is formed.  
This ice moves downhill as a *glacier*.



## Glaciers in Britain

In time glaciers can wear away  
(*erode*) great masses of rock.

Thousands of years ago  
in the Ice Age  
there were more glaciers  
than there are today.

They filled many of the valleys  
in the mountains  
of northern England, Scotland,  
Ireland and Wales.

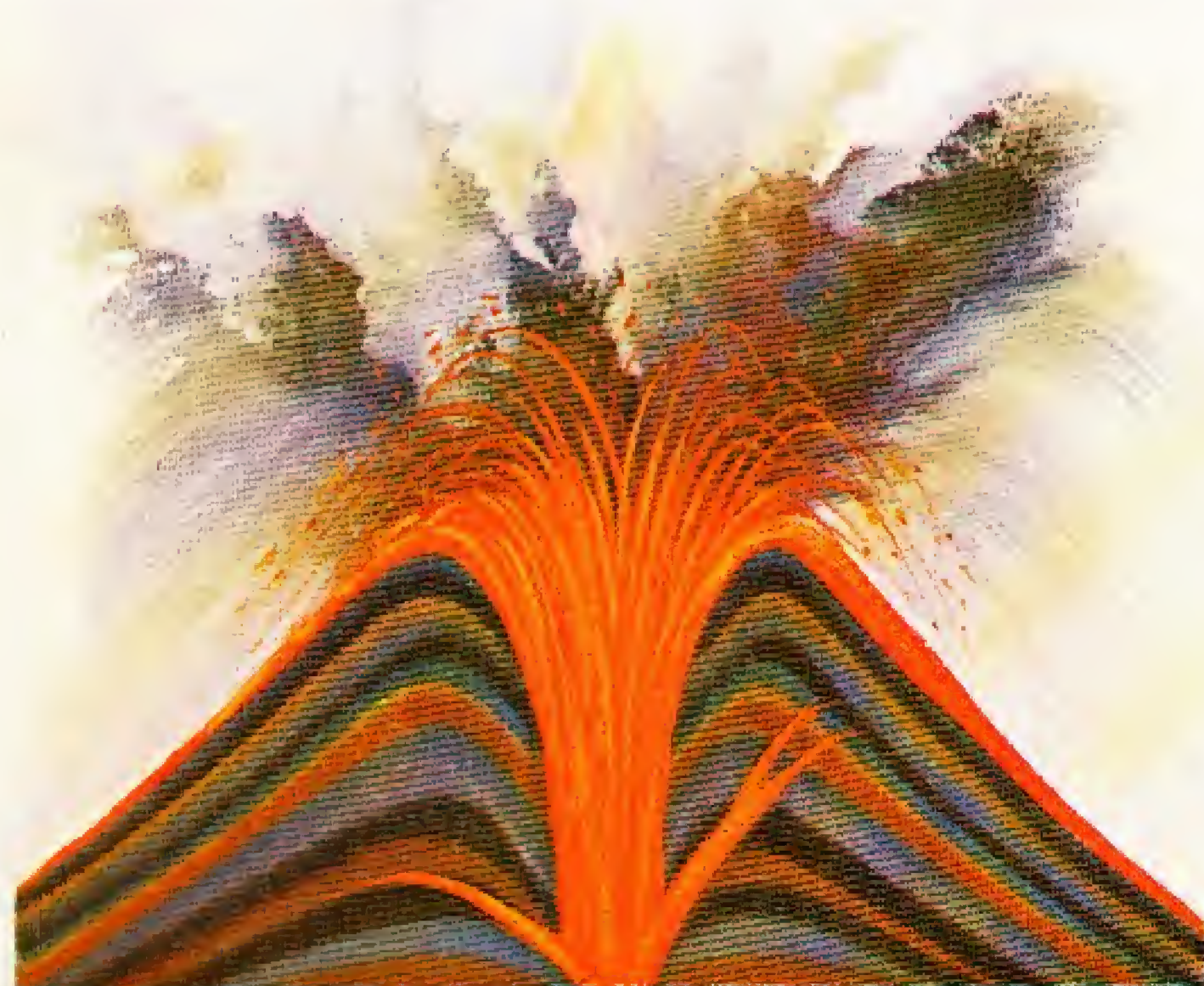
*Glacial erosion formed  
this typical U-shaped  
valley*



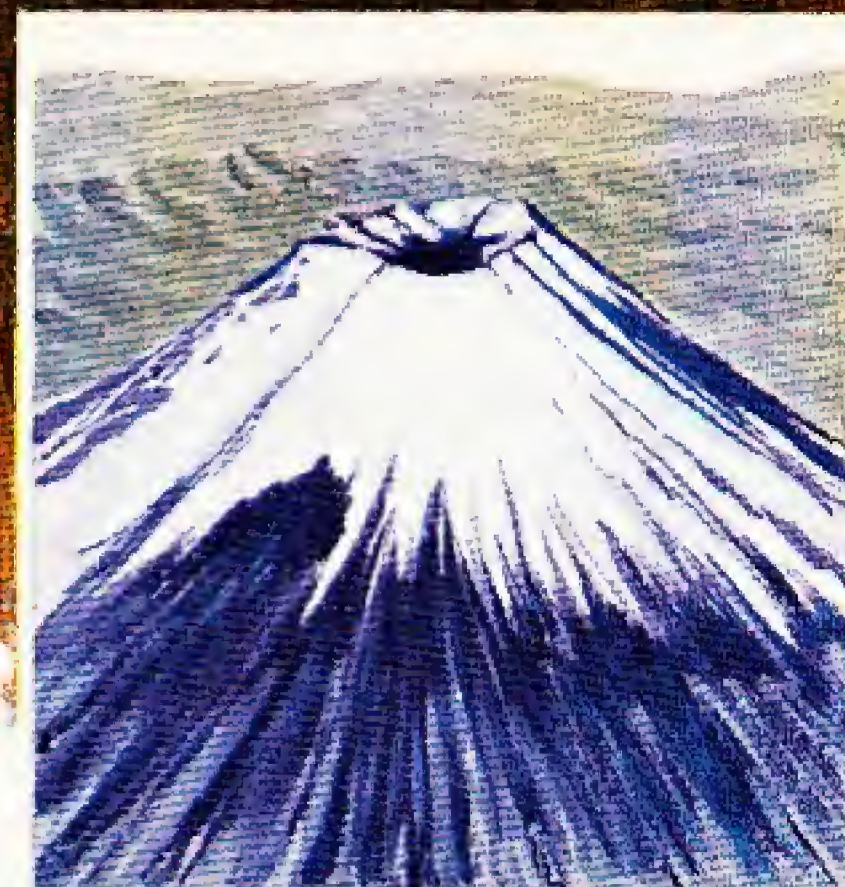


## Volcanoes

Volcanoes such as Mount Hekla in Iceland and Mount Fuji in Japan are mountains that have formed where *lava* or hot, molten rock has come from inside the earth and then cooled to form solid rock. Often there is a deep, round crater instead of a summit.



*Mt Fuji, Japan*



*Close-up of crater  
at summit*



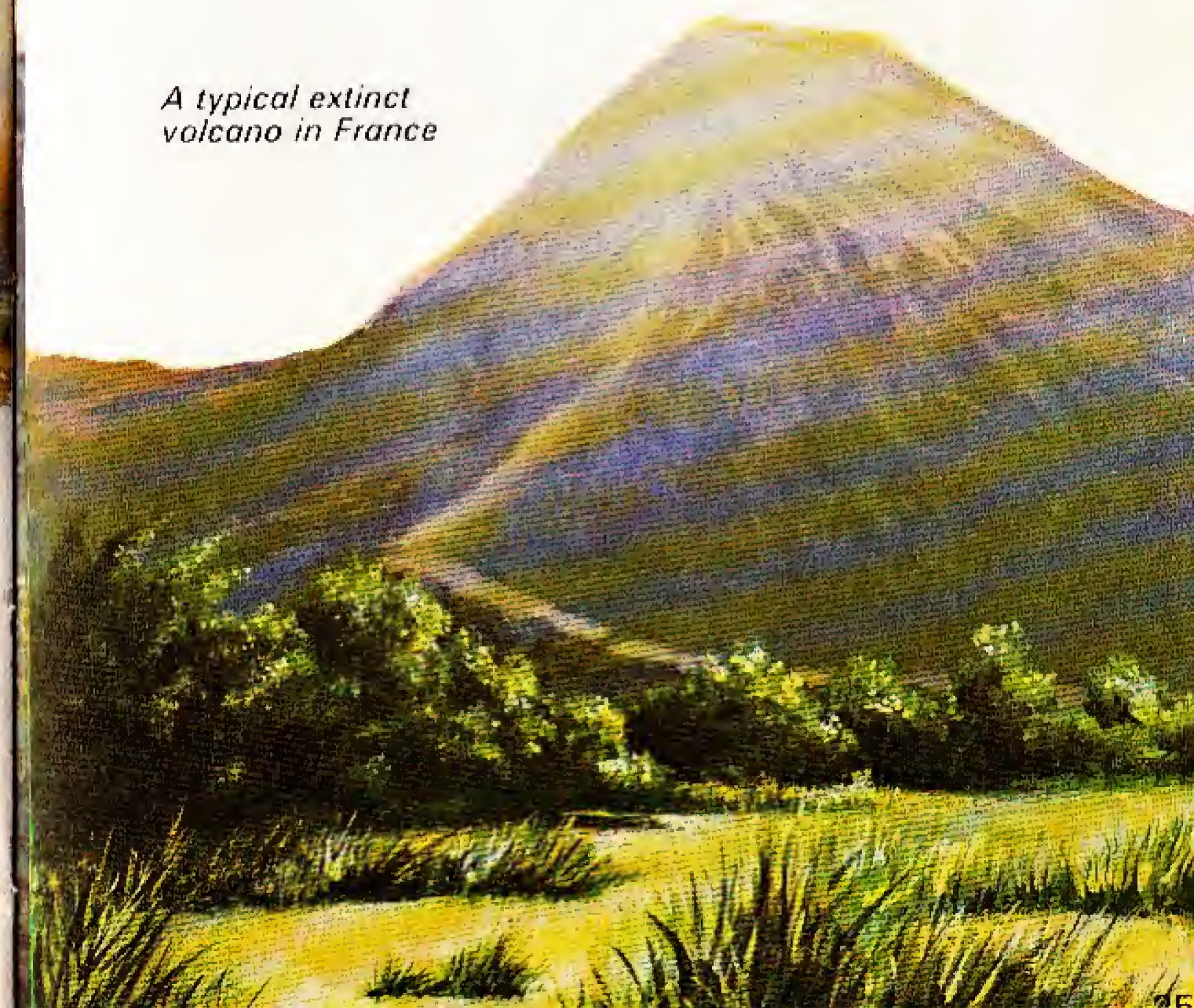


Those that have not erupted for many years are said to be *dormant* (sleeping). They may erupt again one day. *Extinct* or dead volcanoes are those that have not erupted for thousands of years.

## More volcanoes

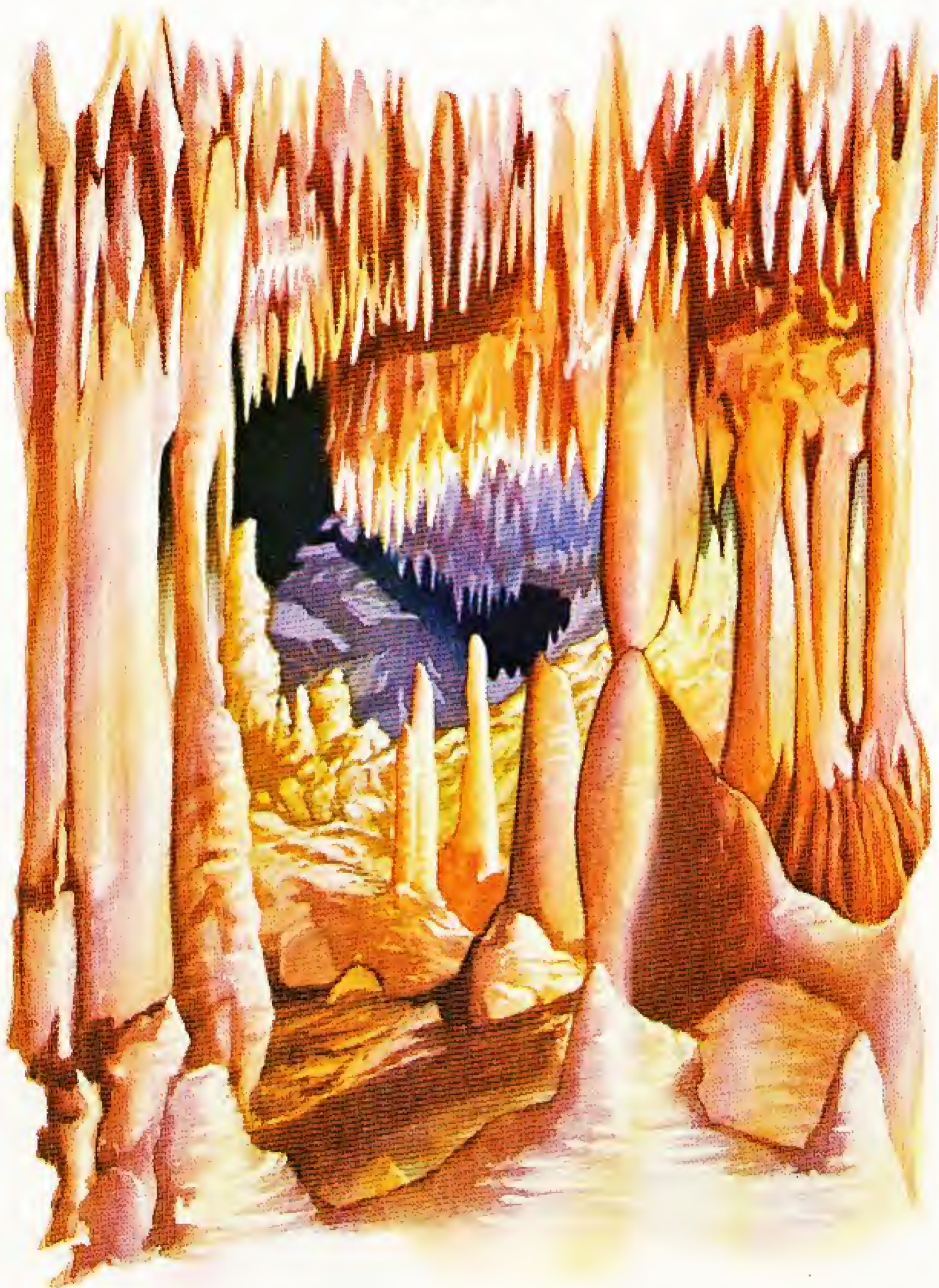
Volcanoes that *erupt*, throwing out lava and clouds of ash from time to time, are called *active* volcanoes.

*A typical extinct volcano in France*





*Treak Cliff Cavern,  
Derbyshire, UK*



## **Inside mountains**

It is sometimes possible to go inside mountains.

Some rocks are dissolved by water, so that caves are formed.

Wookey Hole in Somerset and Treak Cliff Cavern in Derbyshire are well known English caves.



*This painting of a bull was painted 15,000 years ago in a cave at Lascaux, France*

Long ago men lived in caves.

In France and Spain and other places they painted pictures of animals on the walls.

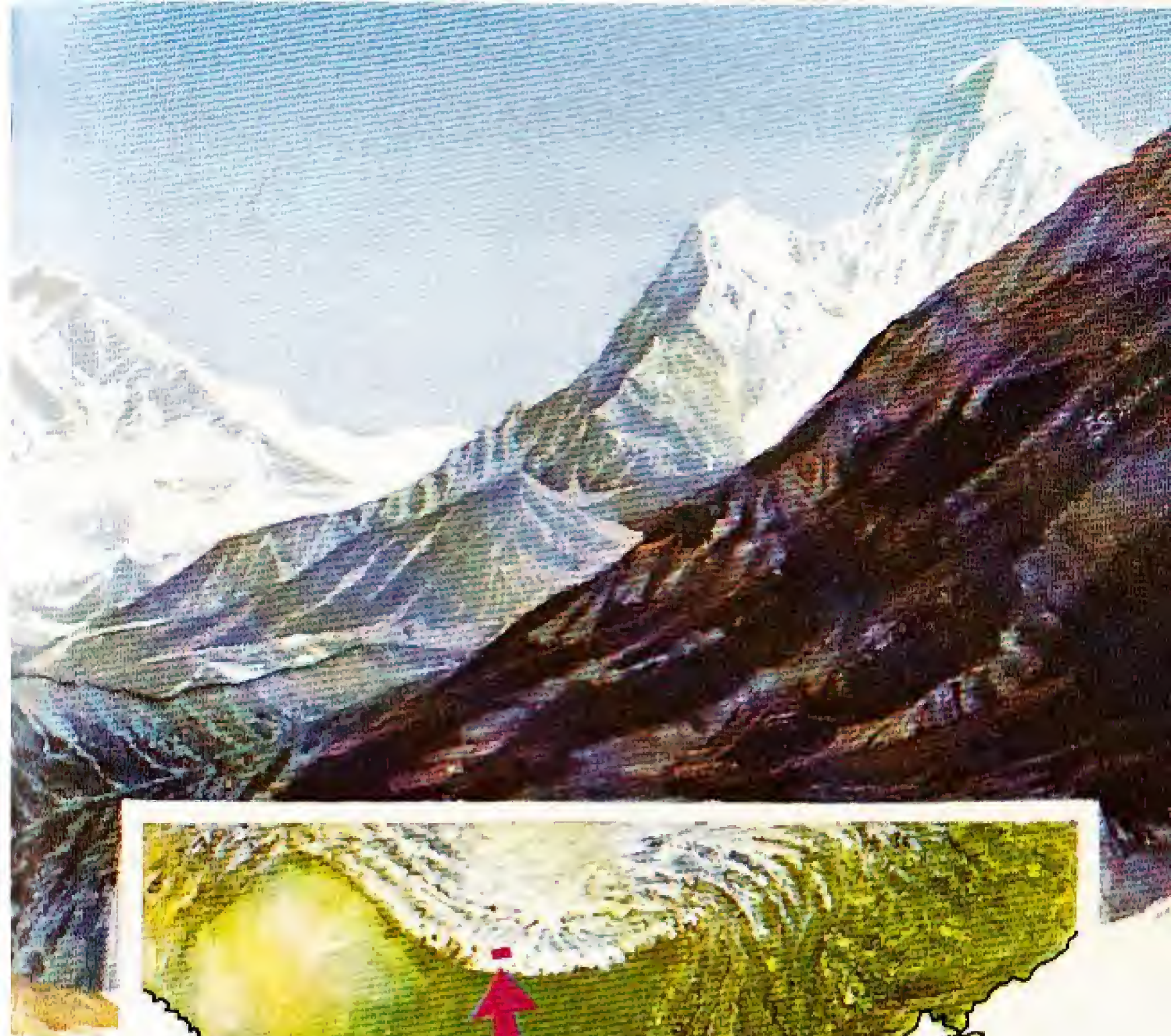




## The world's highest mountain

The highest mountain in the world is Mount Everest, 8 848 metres (29,028 ft), in the Himalayas.

It is on the border between Nepal and Tibet.

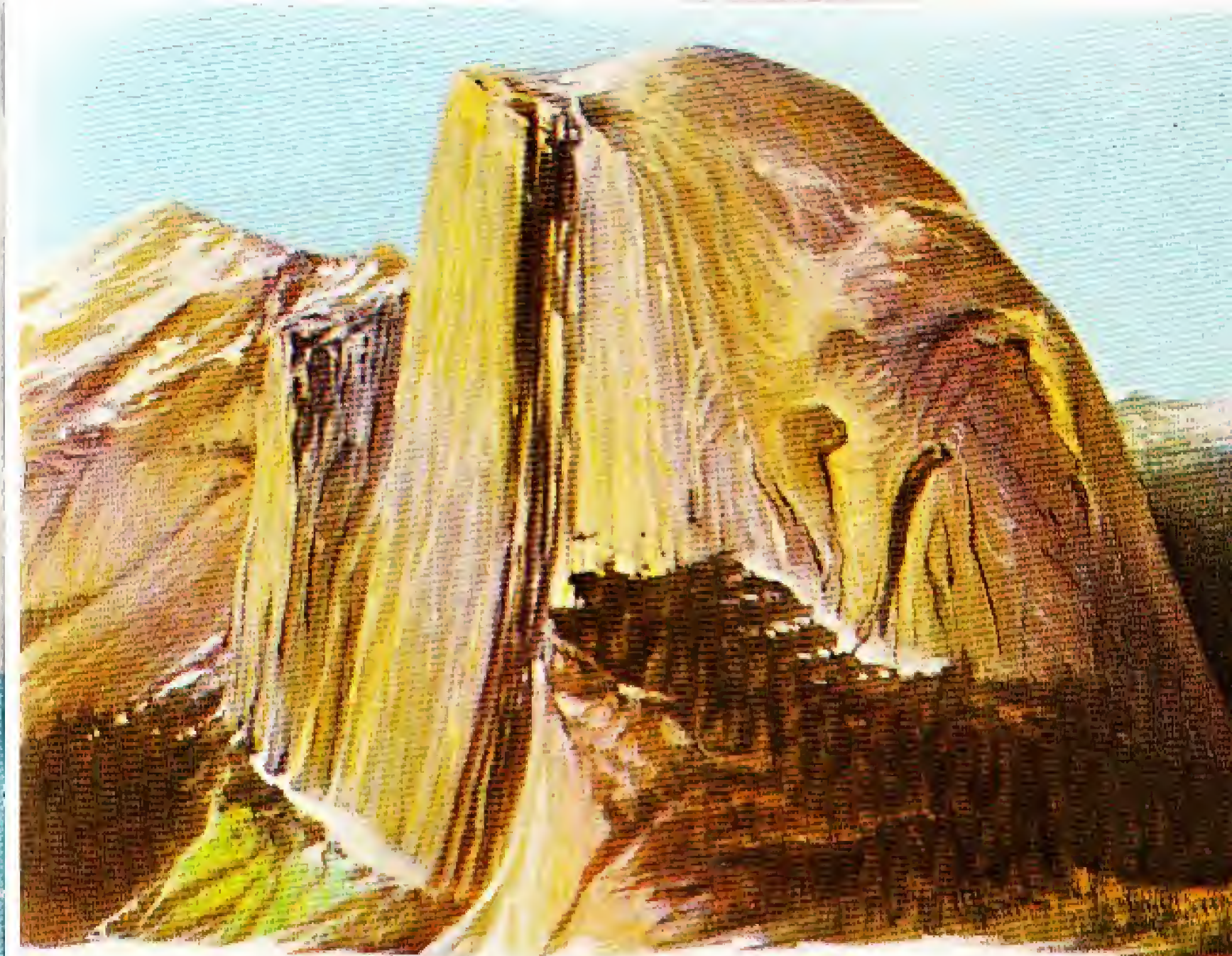


The summit was first reached in May, 1953 by Sir Edmund Hillary and Sherpa Tenzing.



## Mountains of the Moon

These mountains are in Central Africa, almost on the Equator. Although their summits are always covered in snow, there is jungle at their feet.



Alpine 3660 m



Heath 2896 m



Bamboo 2286 m



Rain Forest 1676 m



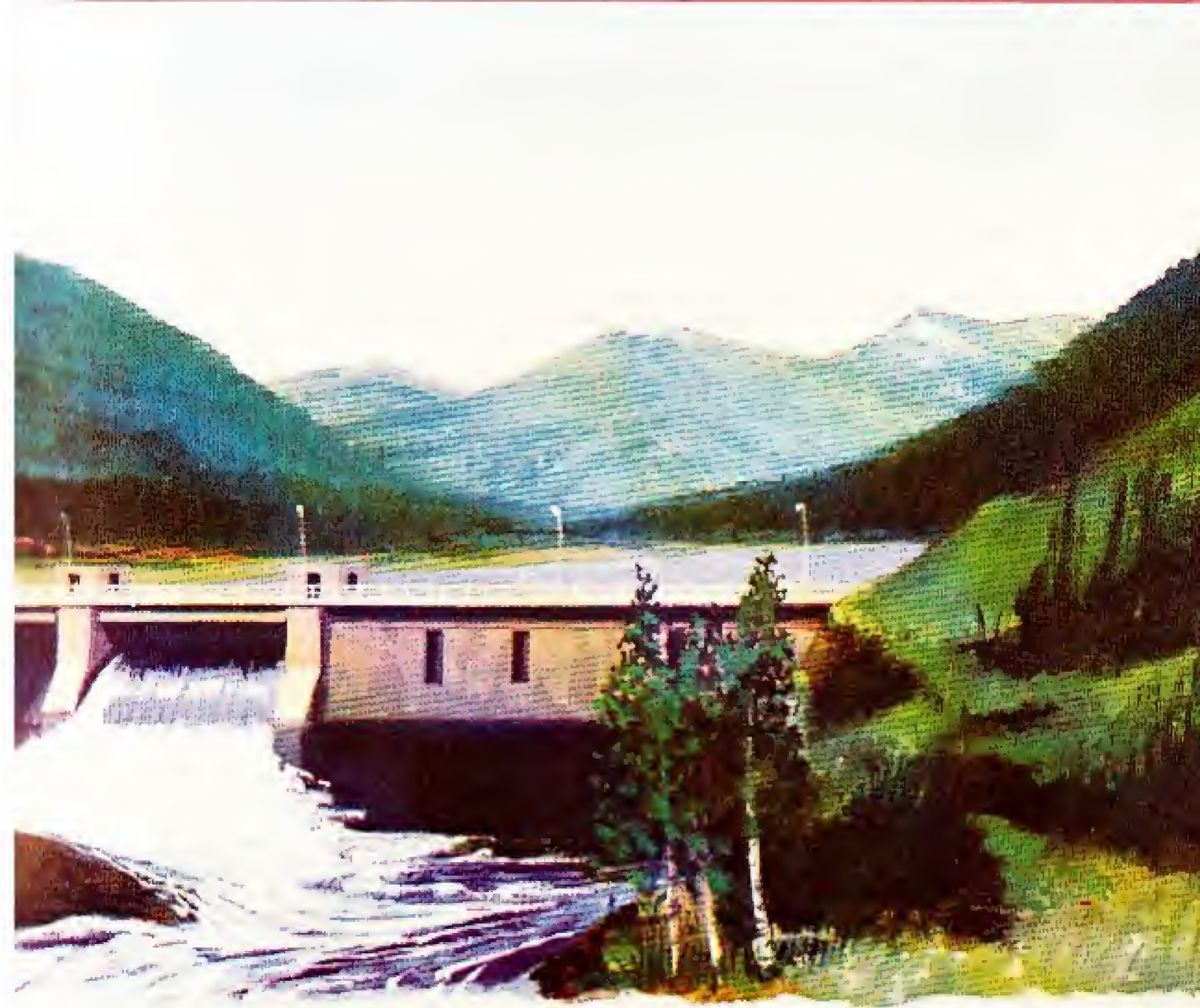
Savannah

## A curious mountain

Here is a mountain with a very strange shape. It is Half Dome in Yosemite National Park in California, USA.

A round granite dome was cut in half by a glacier.

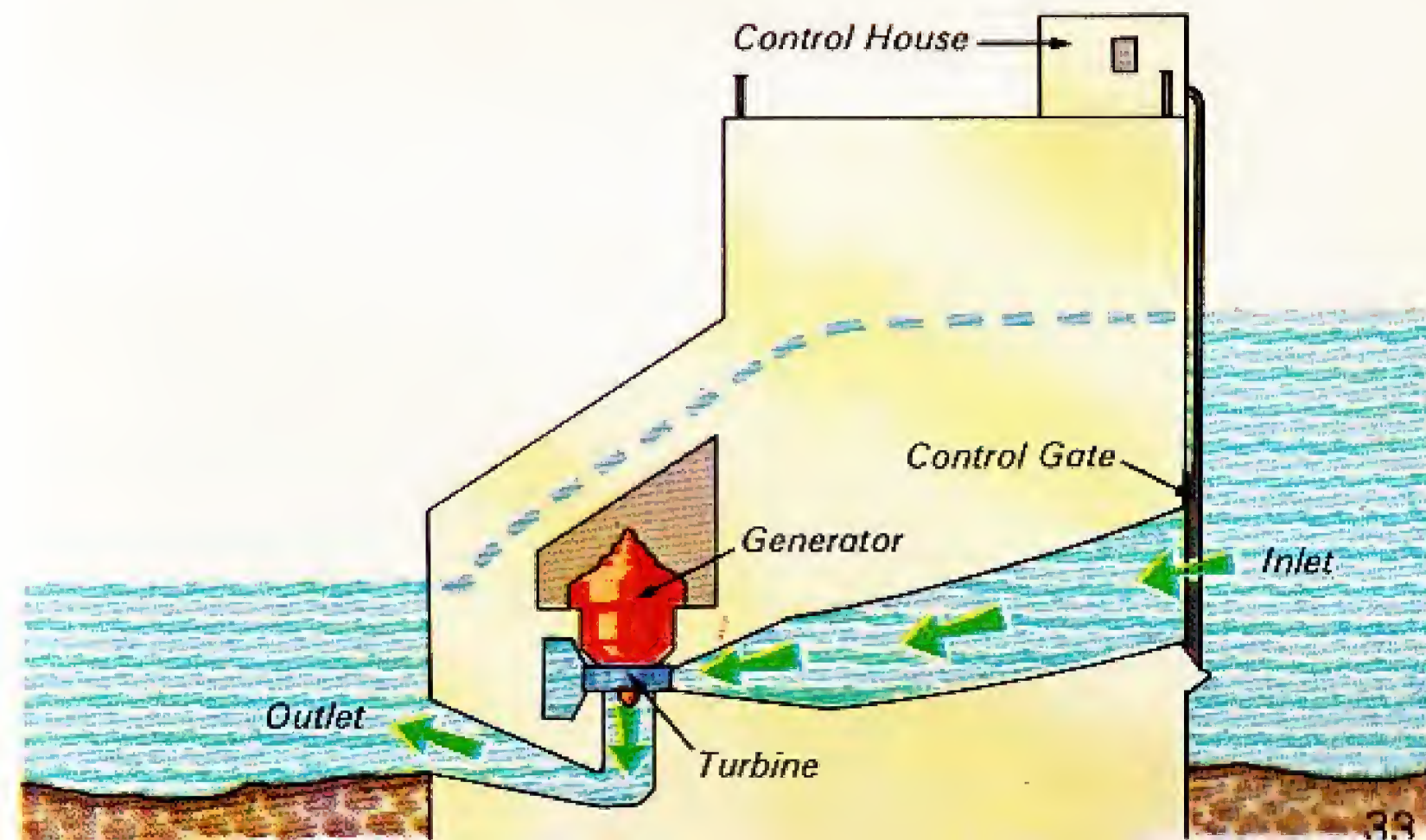




## Hydro-electricity

Mountain streams and rivers are sometimes used to make electricity.

Falling water is led by pipes into a *power-station*, where it turns *generators* to produce the power.

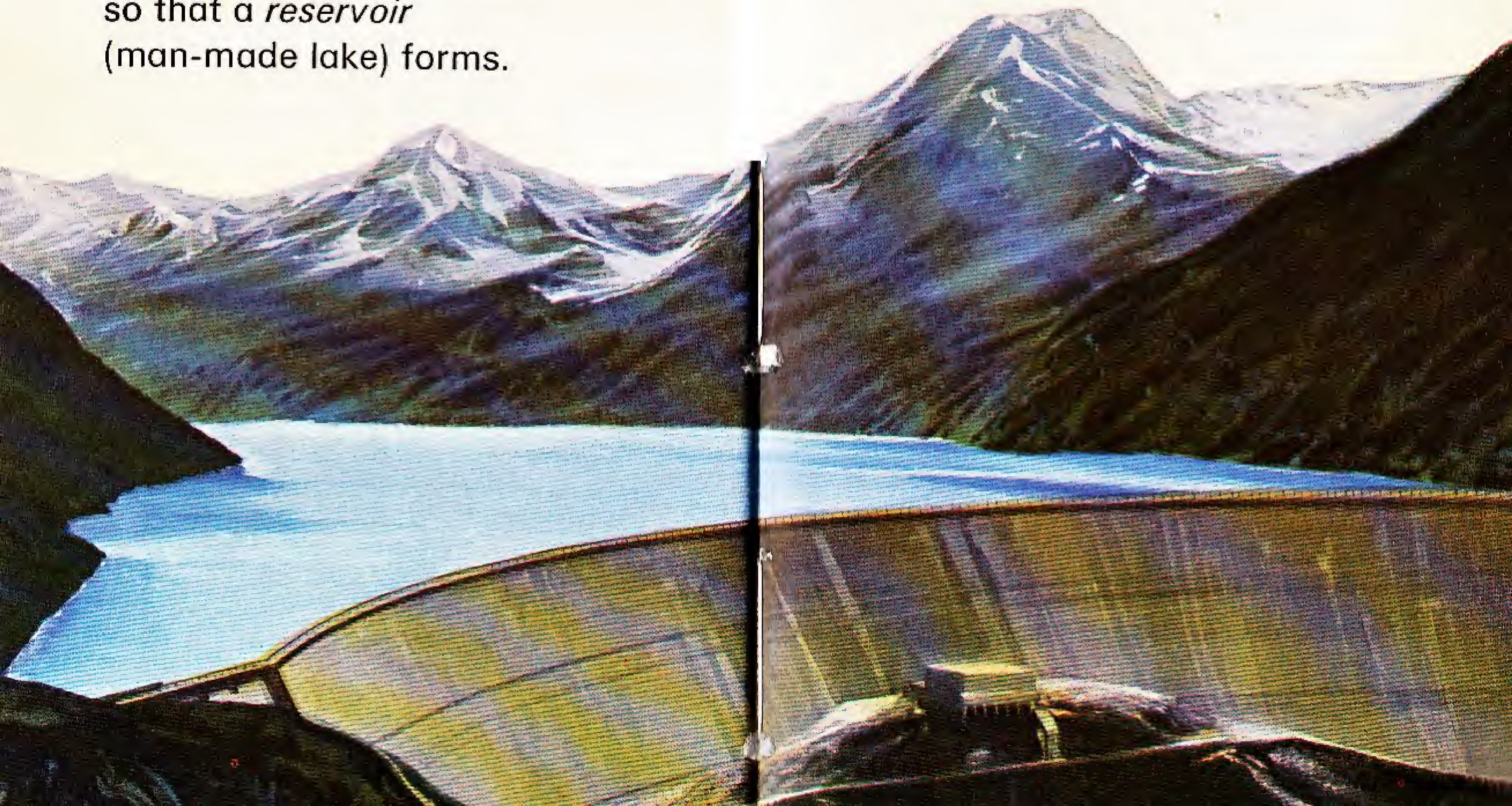




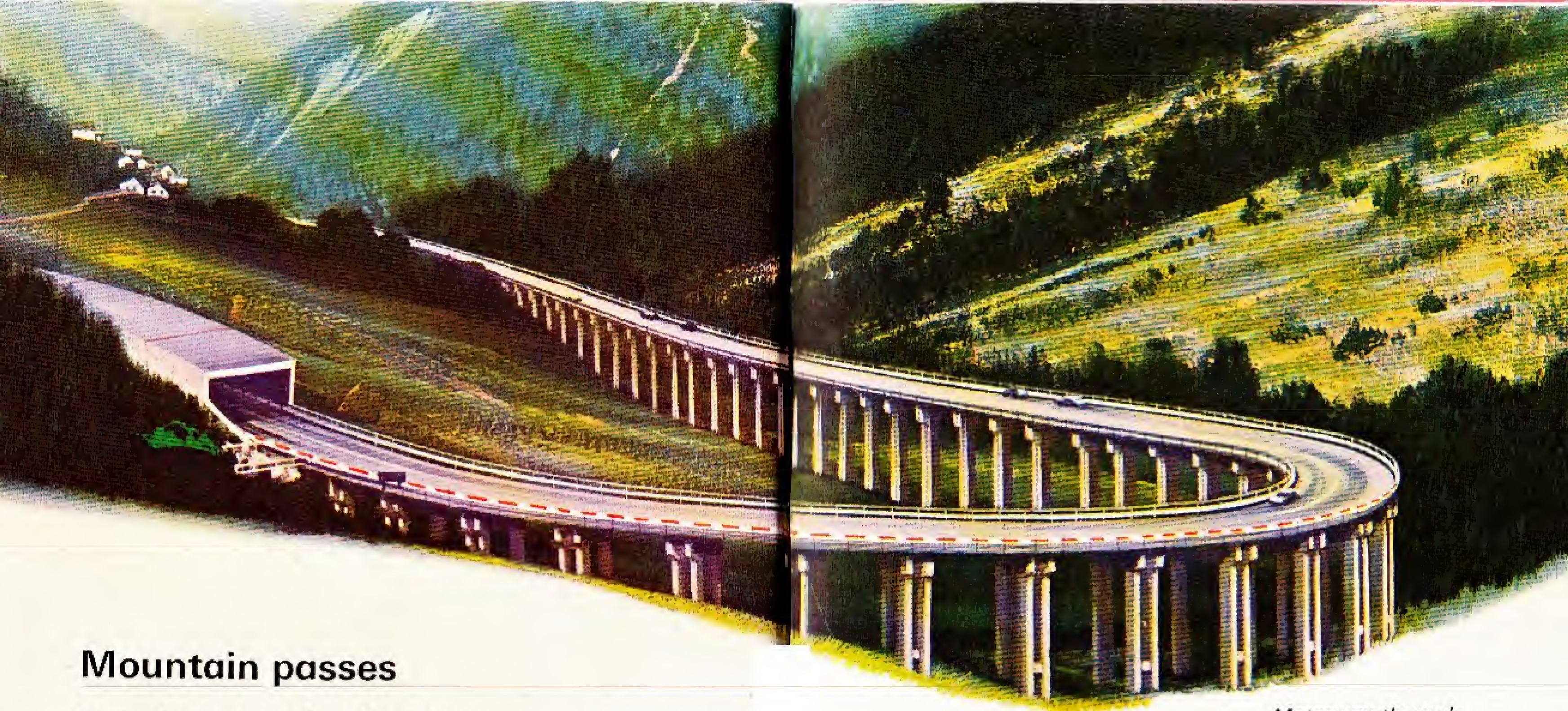
## Dams

The steep valleys of some mountain areas are sometimes blocked by *dams* built of earth or concrete so that a *reservoir* (man-made lake) forms.

Water is often taken from reservoirs in the mountains to cities far away.







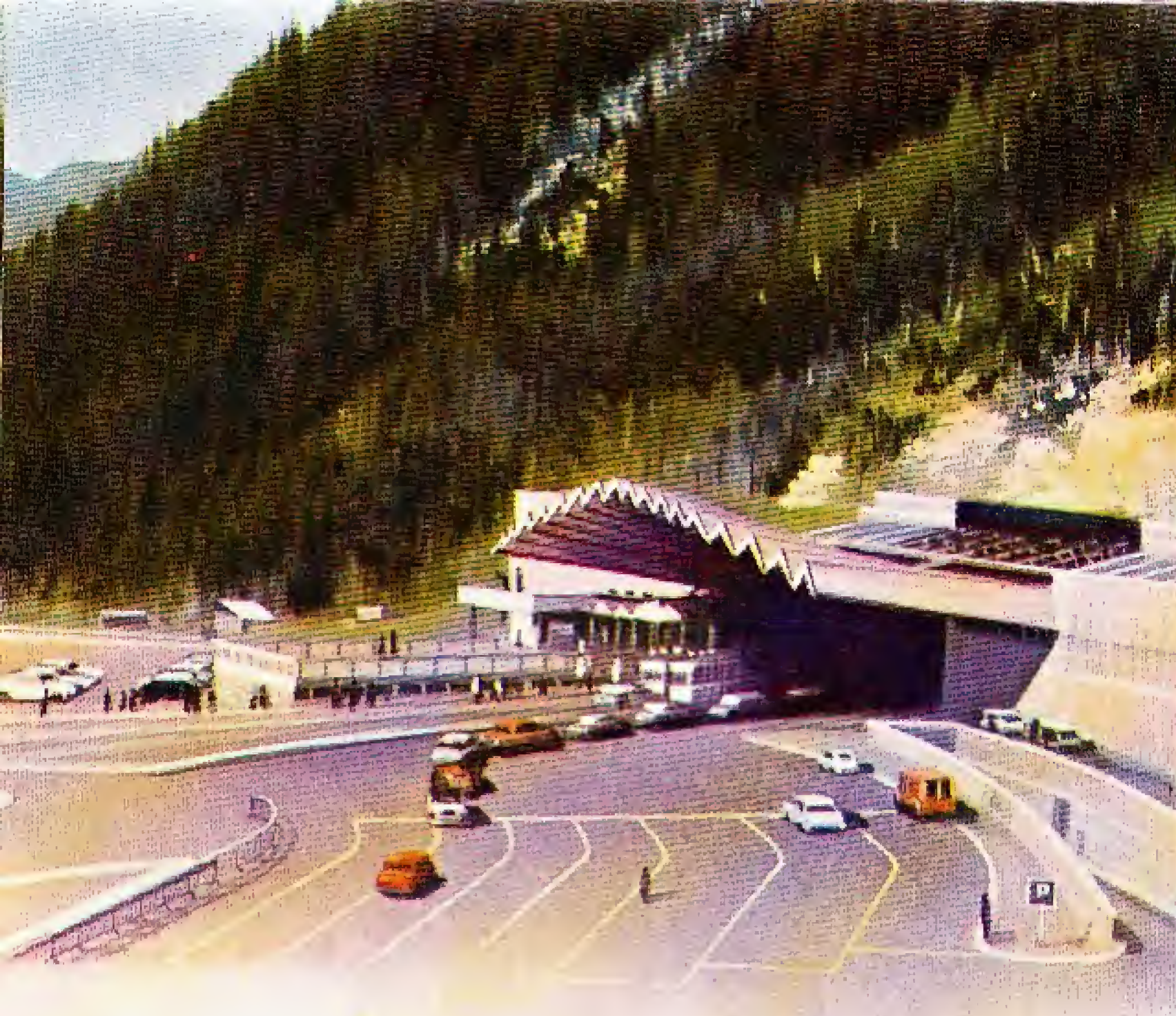
## Mountain passes

For thousands of years men have used *passes* to cross mountain ranges. Once men could only get through with pack-horses and mules, but now railways and main roads use passes.

*Motorway through the Great St Bernard Pass*

The Great Saint Bernard and the Simplon are important passes through the Alps between Switzerland and Italy.





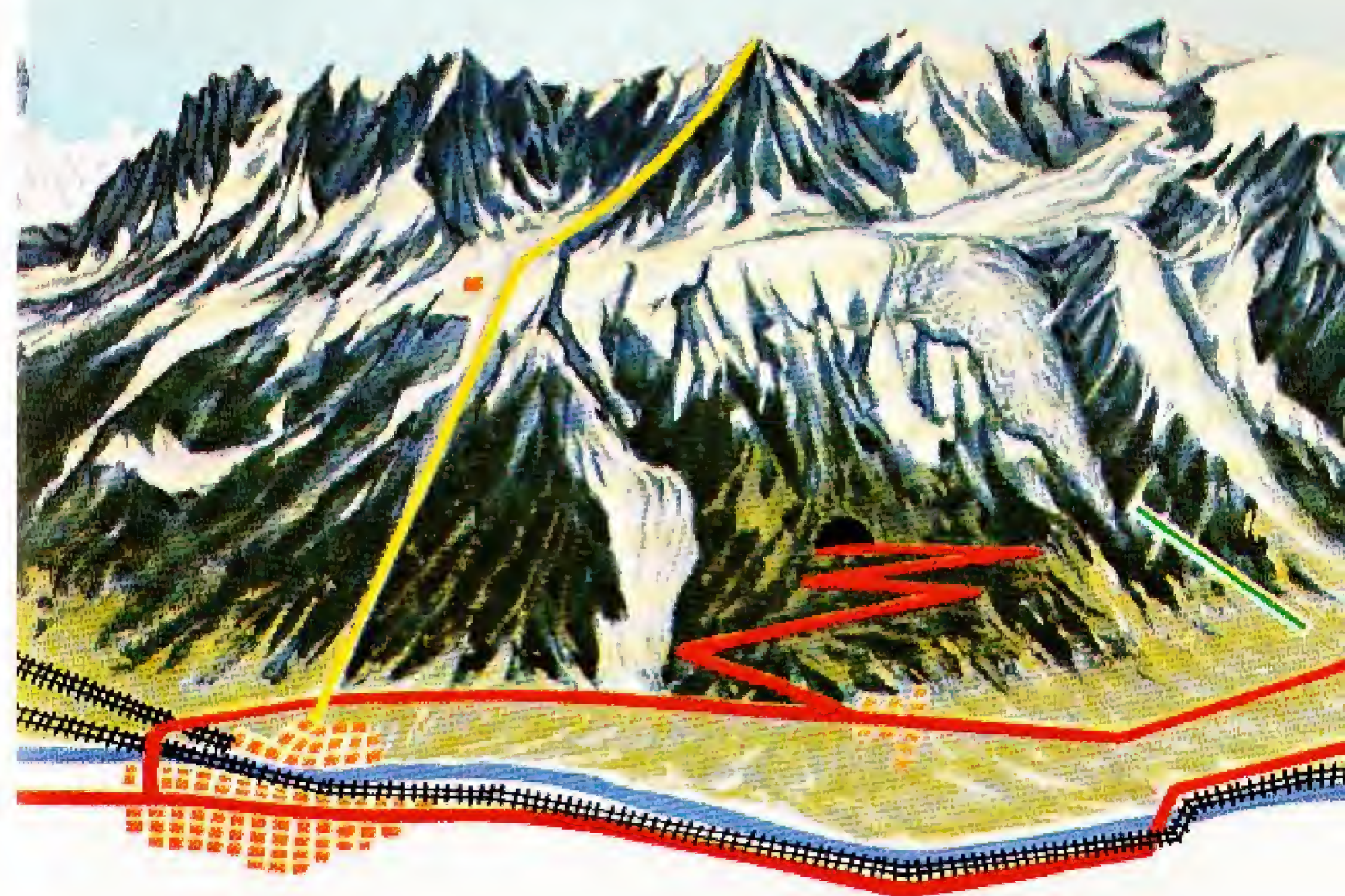
*Entrance to Mont Blanc Tunnel*

## Tunnels

Tunnels are now used to enable roads and railways to get through high mountain ranges.

The Mont Blanc Tunnel between France and Italy is 11 km (7 miles) long.

*Approaches to Mont Blanc Tunnel*



- |   |            |   |                    |
|---|------------|---|--------------------|
|  | Road       |  | Railway            |
|  | Cable car  |  | Houses             |
|  | Chair lift |  | Entrance to tunnel |





## Cable cars and chairlifts

*Cable cars* are like buses but hang from strong cables fixed between the bottom of a mountain and a point close to the summit.

They are pulled up and down by electric motors.

Cable cars are used in mountainous areas in parts of France and Switzerland.

On a *chairlift* single seats are fixed to a wire. They are used to take skiers to the ski-slopes.







## Fell-walking

Many people enjoy the beautiful scenery of mountains and the challenge of reaching a summit.

At weekends and in the holidays many people go fell-walking. (A *fell* is a steep mountainside in the north of England.)

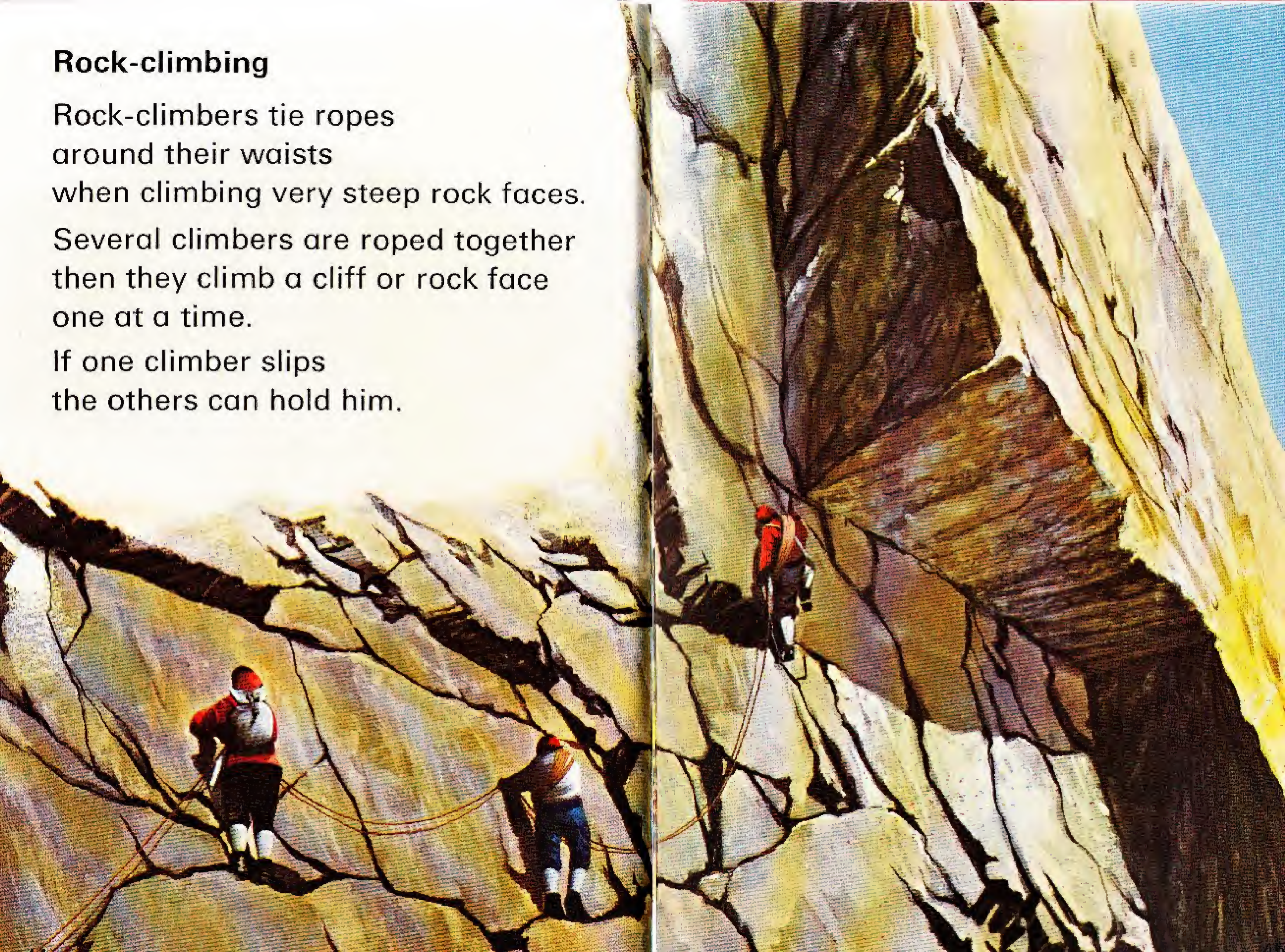


## Rock-climbing

Rock-climbers tie ropes around their waists when climbing very steep rock faces.

Several climbers are roped together then they climb a cliff or rock face one at a time.

If one climber slips the others can hold him.





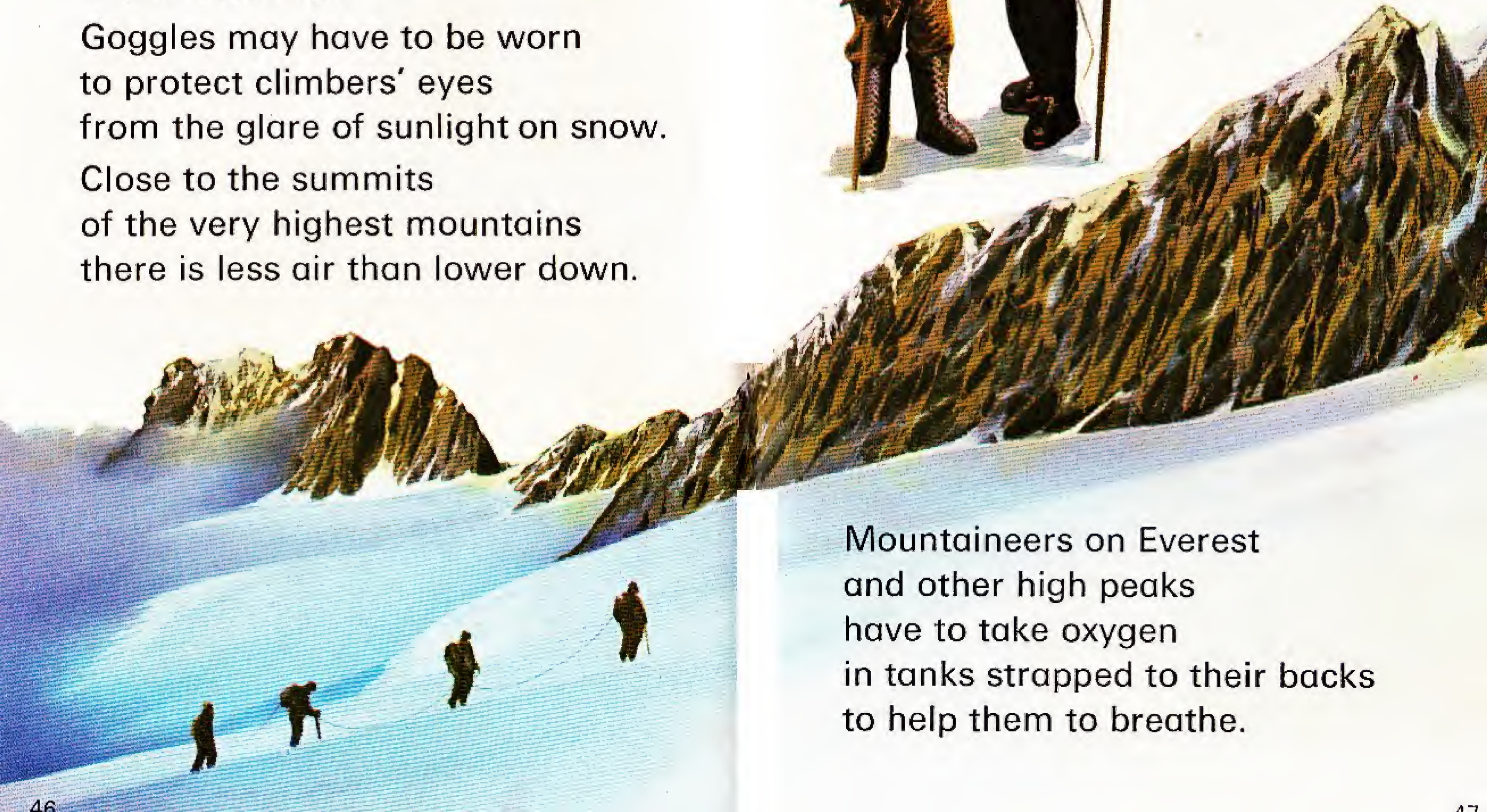
## Mountaineering

Climbing high or difficult mountains is called *mountaineering*.

Ice axes are used to help climbers in snow and ice.

Goggles may have to be worn to protect climbers' eyes from the glare of sunlight on snow.

Close to the summits of the very highest mountains there is less air than lower down.



Mountaineers on Everest and other high peaks have to take oxygen in tanks strapped to their backs to help them to breathe.



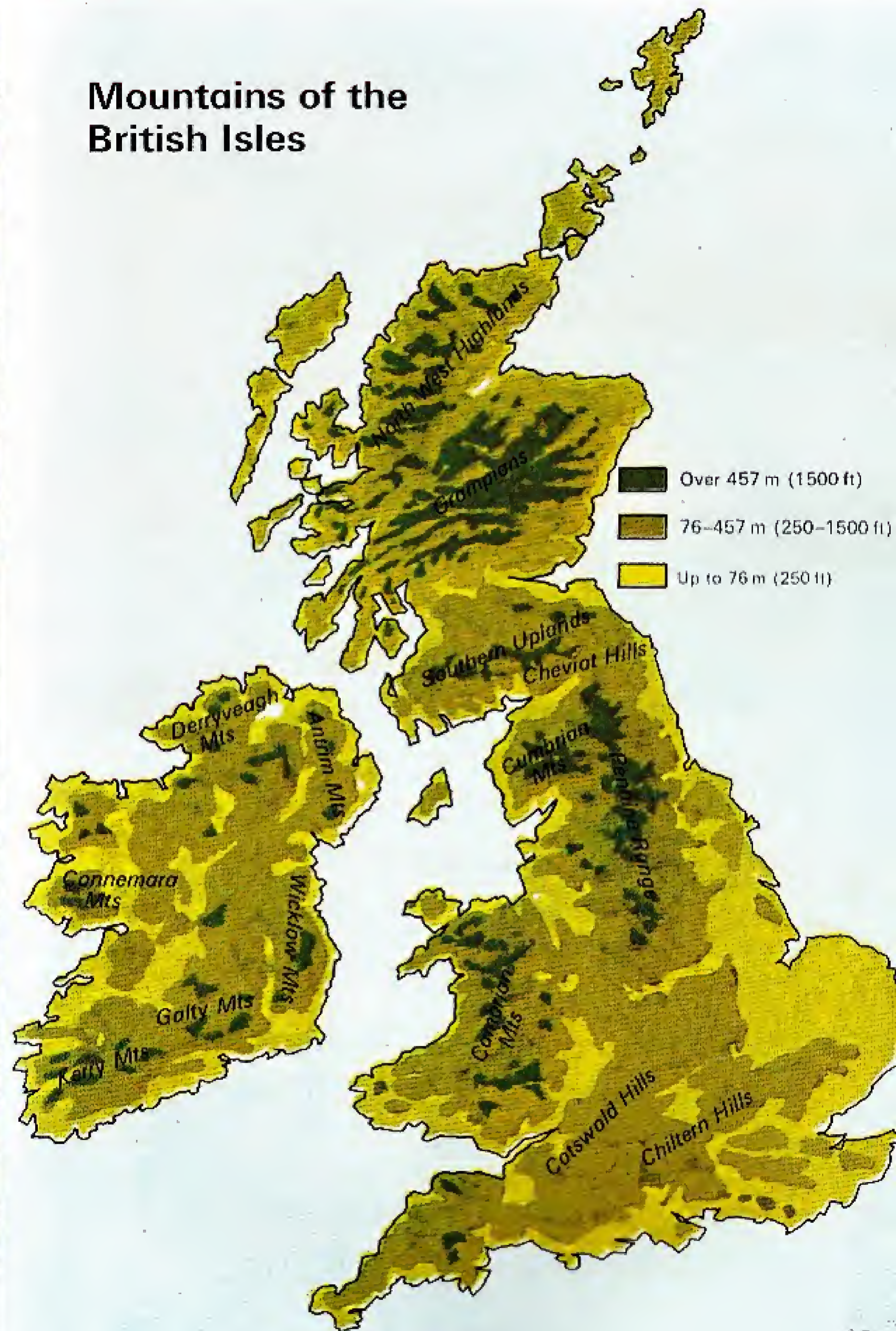


Ben Nevis

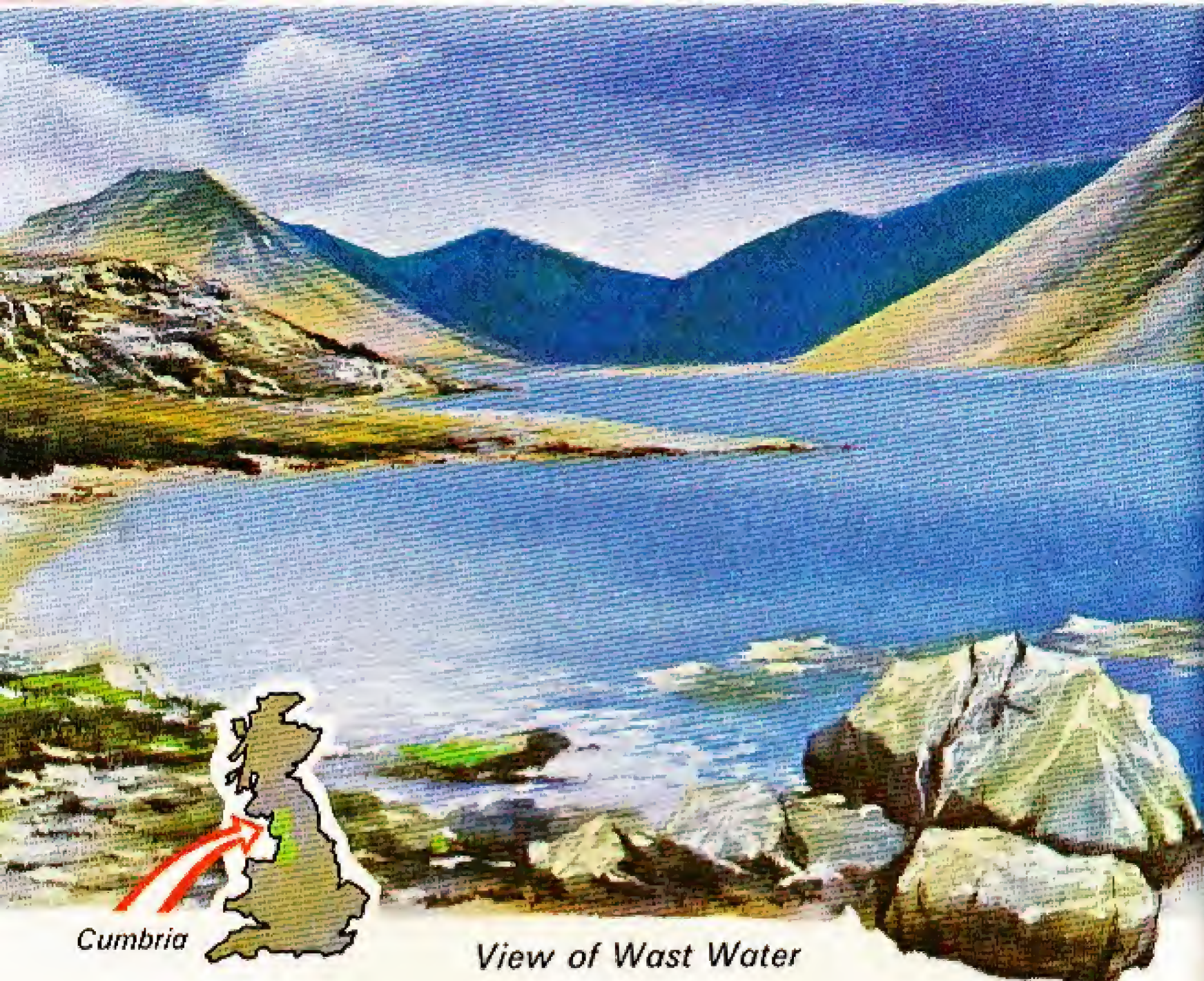


Snowdon

## Mountains of the British Isles







Cumbria

View of Wast Water

## Cumbria

The Lake District of Cumbria is one of the most beautiful mountain areas of Britain.

As well as high mountains there are lakes such as Coniston Water and Windermere.

These lakes are in deep valleys cut by glaciers in the Ice Age.

## The Scottish Highlands

The Highlands of Scotland are the highest mountains in Britain.

On a few of them there are snow patches that lie for years at a time.

Ski-ing is usually possible in winter in the Highlands.

*The 731 metres (2399 ft) peak of Suilven*





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